Vol. 91. Part 2. Pp. 51–64. 15th July, 1941

THE

TRANSACTIONS

OF THE

ROYAL ENTOMOLOGICAL SOCIETY

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LONDON:
PUBLISHED BY THE SOCIETY AND
SOLD AT ITS ROOMS, 41, QUEEN'S GATE, S.W.7

Price 4s. 0d.

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THE ANTS OF JAPEN ISLAND, DUTCH NEW GUINEA (HYM. FORMICIDAE)

By Horace Donisthorpe.

(*Department of Entomology, British Museum (Nat. Hist.)*).

Manuscript received 16th September, 1940.

Read 6th November, 1940.

The following paper deals with the ants taken by Miss L. E. Cheesman during her six months' stay on Japen Island, Dutch New Guinea (1938–39).

This island is about 90 miles long, of an attenuated diamond form, the widest part being 14 miles across. The eastern end is only 10 miles distant from the mainland of New Guinea. Miss Cheesman informs me that the formation of Japen consists of a foundation of ancient crystalline rock, with elevated reef mountain ranges, such as Mt. Baduri, and at least one volcanic range—Mt. Eiori.

As far as I am aware, Miss Cheesman is the only naturalist who has collected ants on Japen; certainly no list has been published. Moreover, very little collecting of any sort has been done here; no collectors have been far inland, and the island is unexplored. The ants collected by her are of considerable interest, and quite a number are new to science.

A point that struck me very much during my study of these insects was that in a number of genera the species themselves are larger in size than those of the same genera on the mainland. Miss Cheesman also found this to be the case with the group of Hymenopterous insects she herself specially studied. It is difficult to give any satisfactory explanation of this. It may, however, be suggested that this state of things is the result of very long isolation from the mainland, and less competition in the struggle for life. Furthermore, as pointed out by Miss Cheesman, Japen (and also Waigeu Island) may be part of a very old land system which appears to have existed long before New Guinea emerged from the ocean bed during the Miocene–Pliocene.

The ant-fauna of Japen is typically Papuan.

Formicidae.

Ponerinae Lepeletier.

Ectatommini Emery.

Rhytidoponera Mayr.

Rhytidoponera (Rhytidoponera) gagates sp. n.

☿. Jet black, shining, legs and scapes blackish-brown, mandibles, funiculi, sides of scapes, articulations of antennae and legs, coxae, tarsi, lobes and edges of antennal carinae, posterior border of segments, and last segment of gaster reddish; covered with outstanding hairs, or bristles.

Head longer than broad, slightly broader in front than behind, cheeks rounded, slightly narrowed behind eyes, occiput truncate, posterior border of head sinuate and narrowly margined, with sharp short posterior angles, posterior portion of vertex slightly excavate in centre and with bluntly rounded posterior angles. Sculpture of head very rugose, with deep shining pits surrounded by a network of sharp raised ridges.

Mandibles strongly, longitudinally striate; *clypeus* convex, pointed anteriorly, with a strongly raised long central carina, and three or four shorter ones on each side; *frontal carinae* with sharply raised edges, convergent behind; *eyes* very prominent, situated before centre of sides of head; *antennae* long, *scapes* reaching beyond posterior border of pronotum, strongly longitudinally striate, *funiculi* with all the joints longer than broad, 2nd–4th subequal, 5th–9th becoming gradually shorter, 10th longer than 9th, last joint slightly shorter than two preceding taken together. *Thorax* longer than broad, subparallel, sculpture similar to that of head; *pronotum* convex, about as long as broad, anterior angles blunt but distinct, posterior portion raised, and rounded at sides, slightly concave in middle; *pro-mesonotal suture* distinct and deep; *mesonotum* convex, round, about as broad as long; *epinotum* longer than broad, parallel-sided, the raised ridges becoming transverse at beginning of *declivity*, gradually rounded at declivity, and then abrupt and deeply excavate, with raised rounded sides, not quite as long as dorsum. *Petiole* and *node* transversely striate, the *peduncle* longer than node is high, the tooth beneath peduncle in front sharp but short and pointing downwards, *node* of same high and broad, bluntly pointed at apex; *gaster* with first two segments with transversely curved striae, those on the *post-petiole* being considerably more distinct. *Legs* long. *Long.* 12 mm.

Described from two workers, Japen Isl.: Mt. Baduri, 1000 ft., viii.1938 (*Miss L. E. Cheesman*).

Type in British Museum (N.H.).

Ponerini Forel.

Diacamma rugosum Le Guillou subsp. **japensis** subsp. n.

☿. Black, apex of last joint of antennae, apical portion of mandibles, apex of spines on petiole, extreme apical margins of gaster, sting, spurs and claws, reddish, clothed with longer and shorter scattered erect hairs or bristles, and with a fine yellowish-grey pubescence which is thicker on the gaster.

The striae on the head, thorax, node of petiole, and gaster of about equal breadth and depth. Those on the head extend longitudinally from cheeks behind eyes to posterior border of head, those in front of eyes and between eyes and frontal carinae are oblique, curving round to posterior border, on vertex of head they are slightly deeper, and almost straight. The striae on the pronotum are circular, decreasing in size and becoming transverse at extreme centre. The striae on the sides of the epinotum are slanting towards the middle, those on the declivity are transverse and are separated from those at the sides by a thin raised ridge. The striae on the dorsal surface of petiole are circular, those on the posterior surface being transverse. The striae on the dorsum of the first segment of gaster are circular and become shorter and shorter towards apex. *Long.* 13 mm.

Type in British Museum (N.H.).

This is a considerably larger insect than most of the *rugosum* group and the sculpture is distinct. *D. rugosum* Guil. subsp. *striata* Smith is almost as large, but it is of a distinct greenish hue, and the striation is different.

Described from a worker, Japen Island: Mt. Baduri, 1000 ft., viii.1938, on herbage (*Miss L. E. Cheesman*).

Trapeziopelta latinoda Emery, 1897, *Ann. Mus. Stor. nat. Genova* **38**: 555, Pl. 1, figs. 3, 4. W. ♀.

Type locality: S.E. New Guinea: Paumomu River, Moroka.

One winged female, Japen Isl.: Mt. Baduri, 1000 ft., viii.1938 (*Miss L. E. Cheesman*).

Odontomachini Mayr.

Odontomachus transverso-striatus sp. n.

☿. Chestnut red, eyes, apex of apical teeth of mandibles, petiole and spine black, thorax, gaster and front of legs reddish-brown, apex, and apex of segments of gaster, brownish-yellow.

Head long, considerably narrowed behind eyes, mostly smooth and shining with the exception of some fine longitudinal striae between the frontal carinae, on inner side of apex of antennal foveae, and at base of front; furrow between eyes and posterior border shallow, posterior border narrow, widely sinuate, with a narrow margin bent back at an angle to meet the narrow furrow from base of front; *mandibles* a little longer than half the length of the head, armed with three apical teeth, the central one being very short, the first long, considerably longer than central one, but shorter than one at apex; the inner margin behind apical teeth bearing eleven teeth, the one before the last being considerably longer and broader than the rest, those at base being quite small, upper surface widely transversely striate; *thorax* long and narrow, but not quite as long as head and mandibles taken together, the whole dorsal surface being moderately finely transversely striate; *petiole* armed beneath with a moderately long, rather blunt, tooth projecting downwards, and above with a long, sharp curved spine gradually becoming narrower to apex, and pointing backwards; *gaster* long oval, narrowed anteriorly and posteriorly, broadest just before apex of first segment (*post-petiole*), smooth and shining, furnished with a few long outstanding bristles at apex; *sting* moderate. *Long.* 16·5 mm.

Described from a worker, Japen Isl. : Mt. Baduri, 1000 ft., viii.1938 (*Miss L. E. Cheesman*).

Type in British Museum (N.H.).

This species comes in the *hastatus* Fabr. group, and is allied to *gulosus* Emery, from which species it differs in the combination of the apical teeth of mandibles, number of marginal teeth, colour, etc.

Odontomachus ruficeps Smith subsp. *cephalotes* Smith var.? ♂.

One male, Japen Isl. : Mt. Baduri, 1000 ft., viii.1938 (*Miss L. E. Cheesman*). This is possibly the male of *O. ruficeps* Smith subsp. *cephalotes* Smith var. *longitudinalis* Donis., 1940, *Entomologist* **73** : 108, ☿, Waigeu.

Myrmicinae Lepeletier.

Pheidolini Emery.

Pheidole (Pheidolocanthinus) hercules sp. n.

♀. Very dark, blackish-brown, declivity of epinotum, undersides of petiole and post-petiole, apex of gaster, antennae and legs light brown, funiculi and tarsi lighter; apex of segments of gaster narrowly golden. Whole body furnished with short erect yellow hairs.

Head quadrangular, longer than broad, about one and a half times longer than thorax, slightly broadest before base, anterior angles blunt but prominent, posterior border deeply excised in middle, with a deep short furrow dividing the posterior part of the head into two large lobes with bluntly rounded posterior angles. Vertex of head depressed in centre before posterior furrow. Cheeks and anterior portion of head between the frontal carinae with strongly raised longitudinal lines, the interstices distinctly but finely punctured and

shining. Lobes covered with a broad network of raised lines, the spaces between deep, finely punctured and shining. The sides of the lobes beneath finely longitudinally striate. *Mandibles* massive, convex, smooth and shining, with some small scattered punctures and a row of widely separated larger punctures a short distance from masticatory border; *clypeus* transverse, triangular, deeply notched in middle of anterior border, with a strong carina in centre divided into two raised lines extending into frontal area; *frontal area* smooth, shining, deep, with rounded basal border; *frontal furrow* absent; *antennal carinae* strongly raised, anteriorly divergent, with very sharp edges, slightly sinuate at base enclosing a scrobe reaching beyond middle of head; *antennae* 12-jointed, *scape* short, reaching a little beyond middle of head, *funiculus* with joints 3–8 slightly transverse, *club* three-jointed, not as long as the rest of the funiculus, last joint about as long as the two preceding joints taken together; *eyes* small, projecting, situated considerably in front of centre of sides of head. *Thorax* finely but distinctly asperately punctured with faint raised wavy lines; *pronotum* armed with two stout sharp pointed spines projecting outwards and slightly curved upwards at apex, the raised lines continued along the spines; *mesonotum* with a narrow slightly raised ridge and a deep furrow beneath separating it from the epinotum; *epinotum* armed with two slender sharp pointed spines projecting outwards and curving slightly downwards at apex, about the same length as those of the pronotum, dorsal surface flat, declivity not abrupt, a little longer than dorsal surface; *petiole* smooth, long and narrow anteriorly, with a raised narrow scale-like ridge posterior, sinuate in middle; *post-petiole* narrow transverse, convex, with a short projecting tooth on each side and a sharp tooth projecting forwards beneath; *gaster* globose, finely asperately punctured, and with thin, close, raised longitudinal lines. *Long.* 6·7 mm.

☿. Dark brown, antennae and legs lighter, mandibles, clubs of antennae, tarsi and articulations of the legs yellowish. Erect hairs rather sparse. *Head* round, very finely asperately punctured, and with faint narrow close raised longitudinal lines; *mandibles* long, shining, finely longitudinally striate and with a few small scattered punctures and with a similar short row of larger ones near masticatory border as in the ♀, armed with a number of small denticles, two long sharp teeth at apex, and a shorter one two-thirds from base; *clypeus* transverse, convex rounded anteriorly and posteriorly, with a distinct narrow central carina; *frontal area* small, smooth, well defined; *frontal carinae* fairly long, pointed at apex, sinuate behind and then divergent; *frontal furrow* fine, short, not extending as far as the base of the frontal carinae; *antennae* not very long; *scape* extending beyond posterior border by ¼ of its length, *club* not as long as the rest of the joints of the funiculus, last joint of club equal to the two preceding taken together; *eyes* round, projecting, situated a little before centre of sides of head. *Thorax* asperately punctured, more strongly so than head; *pronotum* armed with two sharply pointed narrow divergent spines, slightly curving downwards at apex, about as long as ⅓ of the thorax; *mesonotum* separated from epinotum by a narrow furrow; *epinotum* armed with two narrow sharply pointed divergent spines curving downwards at apex, about the same length as the pronotal ones, dorsal surface narrow, concave, straight, declivity abrupt, shorter than dorsal surface; *petiole* long, narrow, raised to a projecting narrow ridge, sinuate in middle, at apex; *post-petiole* broader than petiole, transverse at centre, slightly angled at sides; *gaster* round, oval, smooth and shining. *Long.* 3·7 mm.

Described from three soldiers and sixteen workers, Japen Island: 2000 ft., x.1938 (*Miss L. E. Cheesman*), on wet rocks partly submerged in river.

♀ and ☿ types in British Museum (N.H.).

In this species the soldiers and workers are larger than any other recorded for this subgenus.

Pheidole (Pheidolocanthinus) amber sp. n.

☿. Concolorous amber yellow, smooth and shining except for the sides of the mesothorax and epinotum, which are somewhat rugosely punctured, clothed with outstanding yellow hairs.

Head oval, narrowed anteriorly and posteriorly, broadest across eyes, posterior border straight, narrowly margined; a few longitudinal raised lines occur between and beyond the antennal carinae and eyes, the interstices being faintly punctured; *mandibles* smooth and shining, with a few small scattered punctures, finely dentate, the apical tooth, one next to it and one in the middle being sharp and pointed; *clypeus* convex, transverse, rounded anteriorly and posteriorly, *frontal* area small, shallow, shining; *frontal carinae* short, divergent; *antennae* moderate, *scape* extending beyond posterior border of head by about $\frac{1}{4}$ of its length, *club* not quite as long as the rest of the funiculus, last joint a little longer than the two preceding taken together; *eyes* round, projecting, situated before centre of sides of head. *Thorax* long and narrow; *pronotum* armed with two short, sharp, narrow divergent spines projecting forwards; *epinotum* armed with two slightly longer narrow sharp curved spines projecting backwards, dorsal surface narrow, longer than declivity which is somewhat abrupt; *petiole* long, narrow, with a small raised node at apex; *post-petiole* small, but broader than petiole, narrowed anteriorly, rounded at sides and above, unarmed beneath, not as high as node of petiole; *gaster* small, oval. *Long.* 2·4 mm.

Described from ten workers, JAPEN ISLAND: Mt. Baduri, 1000 ft., viii.1938, on foliage (*Miss L. E. Cheesman*).

Type in British Museum (N.H.).

Pheidole (*Pheidole*) *umbonata* Mayr subsp. *fusciventris* Emery, 1900, *Term. Fuzet.* **23** : 223.

Type locality: Friedrich Wilhelmshafen. Ins. Beliao.

One worker, JAPEN ISLAND: Mt. Eiori, 2000 ft., x.1938 (*Miss L. E. Cheesman*).

Pheidole (Pheidole) cheesmanae sp. n.

♀. Blackish-brown, anterior portion of head, mandibles, antennae, and legs yellow ochre, teeth of mandibles and masticatory border black; gaster yellowish-brown, lighter at apex and base of segments, whole body clothed with longer and shorter, scattered, outstanding yellow hairs.

Head subquadrate, slightly broader than long, not counting the mandibles, slightly narrowed in front, posterior border truncate, posterior angles rounded; *mandibles* with a few round shallow scattered punctures, *masticatory border* armed with a pointed tooth at apex, and a small blunt one at base; *clypeus* slightly sinuate in centre; *frontal area* not clearly defined; *clypeus* and *frontal area* appear to be smooth and shining, but are actually marked with a few faint striae; rest of head with distinct raised longitudinal ridges, the interstices of which are shining, but finely punctured, the ridges forming a network at sides of head; *antennae* with *scapes* reaching a little beyond outer ocelli, *club* of *funiculus* not as long as the rest of the same, last joint of club about as long as the two preceding joints taken together. *Thorax* with anterior angles sharp, anterior border of *pronotum* narrowly margined; *mesonotum* with a smooth space in centre, and finely raised longitudinal ridges on each side, the interstices being punctured; *scutellum* transverse, smooth and shining, with a few round shallow punctures, the wide suture between mesonotum and scutellum longitudinally striate; *spines* of *epinotum* strong, sharply pointed, a raised ridge along the spines and the space between is transversely striate; *node* of *petiole* with a

narrow raised ridge above sinuate in centre, surface beneath crenulate; *post-petiole* very transverse, considerably broader than petiole, armed at each side with a blunt tooth, slightly directed downwards at the end; some widely separated narrow raised longitudinal ridges occur on dorsal surface, the spaces between being asperately punctured; *gaster* longitudinally striate at extreme base, enclosing a few round shallow punctures, a few much smaller scattered punctures extend a little way down the first segment, the rest of the gaster being smooth and shining. *Wings* wanting. *Long.* 5·5 mm.

Described from a deälated female, JAPEN ISLAND: Mt. Baduri, 1000 ft., in mossy forest, viii.1938 (*Miss L. E. Cheesman*).

Type in British Museum (N.H.).

This insect may be the ♀ of one of the described workers, but it is unlike any of the known females from these regions.

Crematogastrini Forel.

Crematogaster (*Rhachiocrema*) *paradoxa* Emery, 1894, *Ann. Soc. ent. France* **63** : 72.

Type locality: Humbolt Bay, New Guinea.

Miss Cheesman took 17 workers of this very distinct ant on logs, JAPEN ISLAND: Mt. Oude, 3500–4000 ft., x.1938.

Solenopsidini Forel.

Vollenhovia umbilicata sp. n.

♀. Blackish-brown, part of the anterior portion of the head, base of mandibles, scapes, base of funiculi, legs, underside of petiole, and apex of segments of gaster ventrally reddish; covered with longer and shorter yellow outstanding hairs.

Head subquadrate, slightly narrower in front than behind, posterior border slightly sinuate in centre, posterior angles rounded; *mandibles* massive, with some scattered punctures, masticatory border armed with five powerful teeth; *clypeus* bicarinate; *frontal carinae*, sides of *antennal foveae*, *cheeks*, and middle of *front* narrowly longitudinally striate; rest of head covered with raised longitudinal lines forming a network behind, and enclosing umbilicate punctures. *Thorax* long oval, narrowest at base; *pronotum* with a neck, narrow and transverse behind, shoulders rounded, separated from mesonotum by a narrow, deep, circular suture, neck finely asperately punctured, rest of sculpture similar to head, but with transverse raised ridges in centre; *mesonotum* with a narrow smooth space in centre, the rest with longitudinal raised ridges, enclosing umbilicate punctures, suture between mesonotum and scutellum very narrow, but deep; *scutellum* smooth and flat in centre, with scattered umbilicate punctures at sides; *metanotum* very narrow and transverse, smooth in centre with small punctures at sides; *epinotum* rounded, *dorsal surface* transverse, smooth in centre with a few punctures at the side, sides transversely striate, *declivity* abrupt, concave, smooth, shining, longer than dorsal surface. *Sides* of *pronotum* finely asperately punctured; of *prosternum* more strongly so; *episternite* of *mesothorax* finely longitudinally striate, with shallow scattered umbilicate punctures. *Sternite* of *mesothorax* with finely raised close longitudinal ridges asperately punctured between; *petiole* truncate, smooth and shining in front, rounded and convex above, narrowed to apex, smooth and shining in centre with a few punctures at the sides, transversely striate behind, armed beneath with a blunt, rounded, smooth projecting tooth; *post-petiole* broader than petiole, rounded and convex above, smooth and shiny on disc with scattered umbilicate punctures, transversely striate behind, armed beneath with a wedge-shaped pointed projection, asperately punctured and with some shallow umbilicate punctures. *Gaster* long oval, the

long first segment covered with shallow punctures which become finer to apex, the remaining segments very finely coriaceously punctured with a few small scattered shallow punctures. *Wings* dusky and iridescent, covered with fine hairs, *veins* brown, *discoidal cell* transverse, *cubital cell* long, *radial* cell long, open. *Long.* 7·5 mm.

Described from a winged female, JAPEN ISLAND: Mt. Baduri, 1000 ft., viii.1938 (*Miss L. E. Cheesman*).

Type in British Museum (N.H.).

This very distinct species is considerably larger than other known species from these regions, and the sculpture is quite different.

Tetramoriini Emery.

Tetramorium longicarinum sp. n.

☿. Lighter or darker black-brown (in some specimens the head and gaster, and sometimes the petiole and post-petiole are jet black), legs and scapes lighter, the mandibles, funiculi, tarsi and articulations of the legs brownish-yellow. Whole body clothed with longer and shorter erect yellow hairs.

Head longer than broad, posterior angles rounded, posterior border sinuate and narrowly margined; *mandibles* strong, punctured, masticatory border armed with two sharp teeth at apex followed by a third shorter and blunter one, and then by 3 small blunt ones; *clypeus* convex, shining, feebly emarginate anteriorly; *frontal area* ill defined; *frontal carinae* long, divergent, almost reaching posterior angles of head and then bending sharply back, reaching beyond front border of eye, forming a shallow scrobe; three long narrow carinae extend from apex of clypeus between the frontal carinae, almost reaching posterior border of head. A much less strongly marked slanting carina occurs between the outer of the three carinae and the frontal carinae; space between the carinae smooth and shining. *Thorax* longer than broad, broadest at apex, narrowed to base, sinuate in middle, covered with widely separated raised lines forming a network, space between smooth; *pronotum* with anterior border margined, anterior angles well marked; *mesonotum* with a smooth space on disc; *epinotum* armed with two moderate, narrow, sharply pointed divergent spines, *declivity* hollowed out, armed with two short sharp erect spines or teeth; *node* of *petiole* longer than peduncle, oval, higher than post-petiole, covered with a network of thin raised lines; *post-petiole* transverse, broader than petiole, rounded at sides and above, with raised lines similar to those of petiole; *gaster* oval, smooth, shining. *Long.* 4 mm.

Described from one worker, PAPUA: Mafulu, 4000 ft., xii.1933. No. 542 in clay bank; and seven workers, JAPEN IS.: Mt. Eiori, 2000 ft., x.1938 (*Miss L. E. Cheesman*). Tube 96 from a nest in roots of *Polypodium* sp.¶ Type in British Museum (N.H.).

This distinct species is larger than all the allied forms, except *T. bicolor* Viehm. subsp. *tricarinata* Viehm. (1914) which is sometimes 4 mm. in length, but differs from it in colour and in having the long sharply bent antennal carinae. *T. scrobiferum* Emery (1897) is smaller and has a much shorter spine and frontal carina, etc.

Xiphomyrmex gambogecus sp. n.

☿. Reddish-yellow, mandibles, spines, petiole, coxae, base of anterior femora, knees and tarsi, yellow; antennae, two posterior femora and tibiae blackish; post-petiole and gaster gamboge; covered with scattered, longer and shorter, outstanding yellow hairs.

Head a little longer than broad, posterior angles rounded, posterior border sinuate and narrowly margined; *mandibles* strong, masticatory border armed with a sharp tooth at

apex, followed by a shorter sharp tooth close to it, a blunt shorter tooth before middle, followed by two short denticles, then a sharper tooth, and a small denticle before base; *clypeus* convex, anterior border rounded and narrowly margined, with three longitudinal carinae reaching to base and a shorter one between central one and those on each side; *frontal area* rather deep and shining, not well defined, with a short central raised ridge; *frontal carinae* extending beyond posterior border of eyes, divergent, and some six raised ridges present between the carinae; and transverse ridges form a network between the raised ridges, the posterior part of the head and sides are broken up by a network of the same, the ground-surface, or intervals between, being shining, but distinctly punctured; the *scrobes* are broad, and shallow, with transverse ridges, the intervals between shining but finely punctured; *antennae* long, *scape* extending beyond posterior angles of head by about $\frac{1}{3}$ of its length, *funiculus* gradually thickened to apex, all the joints longer than broad, last joint not quite as long as the two preceding taken together; *eyes* round, projecting, situated at about centre of sides of head. *Thorax* covered with a network of raised ridges, the intervals shining but distinctly punctured; *epinotal spines* long, narrow, divergent, sharply pointed. *Petiole* with a long peduncle, *node* high, bluntly pointed above; *post-petiole* rounded, narrow anteriorly, broadest before base, where it is considerably broader than petiole; *gaster* long oval, smooth and shining. *Legs* long. *Long.* 5 mm.

This species is larger, and differs in sculpture, etc., from all the other species described from this region. Described from 23 workers, JAPEN ISL.: Mt. Eiori, 2000 ft., x.1938, from a nest situated behind the rhizome of a species of *Lecamopteris* (*Miss L. E. Cheesman*).

Type in British Museum (N.H).

Xiphomyrmex gambogecus Donis. var. **flavus** var. n.

☿. Differs from the typical form in being nearly entirely of a yellow colour; the funiculi, and the posterior pairs of femora and tibiae slightly fuscous. It is slightly smaller (4·7 mm.), the peduncle slightly shorter, and the epinotal spines slightly thicker and shorter. These are probably individual differences.

Type in British Museum (N.H.).

Described from a worker, JAPEN ISL.: Mt. Baduri, 1000 ft., viii.1938, in mossy forest (*Miss L. E. Cheesman*).

Dacetini Forel.

Orectognathus longispinosus sp. n.

☿. Head (except anterior part and posterior angles of lobes which are brownish-yellow), thorax, base of epinotal spines, petiole and post-petiole black; antennae, apex of spines, legs, and gaster brownish-yellow; mandibles, last joint of antennae and base of scapes pale yellow, teeth reddish-yellow; smooth and shining, covered with very small scattered punctures.

Head triangular, deeply excised posteriorly, forming two large lobes bluntly pointed at posterior angles, the undersides of which are distinctly carinate forming a sharp tooth at apex, these side pieces being covered with large round shallow punctures; the underside of the head between these sharp teeth is deeply scooped out; *clypeus* large, transverse, anterior border straight except in centre where it is slightly sinuate, anterior angles and sides rounded, side lobes higher than central portion, which is flat and closely and finely punctured, posterior border rounded; *frontal carinae* short, raised, bluntly rounded, strongly sinuate at base; *frontal area* not defined; *frontal furrow* wanting; *mandibles* long, thin, subparallel, sinuate on inside anteriorly and posteriorly, armed with three curved pointed

teeth at apex, the upper one being the longest, the intermediate and lower one being of about the same length; *antennae* long, *scape* curved, not reaching posterior angles of lobes by about $\frac{1}{3}$ of its length, *funiculus* with first joint short, shorter than third, but longer than broad and widest at apex, last joint twice as long as third, thickened towards apex and then sharply pointed; *eyes* prominent, oblong, situated in front of sides of head, close to antennal foveae. *Thorax* long, narrow, broadest before middle; *pronotum* convex with bluntly rounded anterior angles; *meso-epinotal* suture very fine; *epinotum* armed with two very long, narrow, divergent, sharply pointed spines extending backwards, *dorsal surface* convex, longer than the *declivity*, which is short and somewhat concave, with two short teeth at apex embracing the insertion of the petiole; *petiole* long and narrow, with long *peduncle*, increasing in width towards base; *post-petiole* longer than broad, very slightly broader, and not quite as long as a third of the petiole; *gaster* short oval. *Long.* 5·5 mm. with mandibles; mandibles 0·8 mm.

Type in British Museum (N.H.).

Described from a worker, Japen Island: Mt. Baduri, 1000 ft., viii.1938 (*Miss L. E. Cheesman*).

Dolichoderinae Forel.

Dolichoderini Emery.

Irenea omyrmex Donisthorpe, 1938, *Ann. Mag. nat. Hist.* (11) **2** : 502.

Type locality: Mt. Nomo, Dutch New Guinea.

Japen Island: Mt. Baduri, 1000 ft., viii.1938; one worker (*Miss L. E. Cheesman*).

I consider *Irenea* Donisthorpe, 1938, *Ann. Mag. nat. Hist.* (11) **2** : 502–504, to be a good genus. When I described it as a new subgenus I pointed out that the only subgenus of *Dolichoderus* Lund it could fit into was *Hypoclinea* Mayr, but that the petiole is generally in the form of a blunt scale, either bidentate or truncate at the summit. This definition does not cover the two long spines; nor does the cloacal orifice agree with *Hypoclinea* or that of *Dolichoderus*. I said it was perhaps safer not to make a new genus on only one specimen. Now, however, as another has turned up in a fresh locality, I propose to raise *Irenea* to generic rank.

Tapinomini Emery.

Iridomyrmex rufoniger Lowne subsp. *pallida* Forel, 1901, *Mitt. zool. Mus. Berlin* **2** : 22, note.

Type locality: Queensland.

One worker, Japen Island: Mt. Oude, 3500–4000 ft., xi.1938 (*Miss L. E. Cheesman*).

Iridomyrmex dimorphus Viehmeyer, 1912, *Abh. zool. Mus. Dresden* **14** : 7.

Type locality: New Guinea.

A number of workers was taken by Miss L. E. Cheesman on Mt. Baduri, Japen Island, 1000 ft., in August and September, 1938; on a drying mammal skin, and on a moth screen, at night on both occasions. The male described below was also taken on Mt. Baduri, viii.1938.

♂. Black mandibles, first joint of funiculus, tarsi, articulations of the legs, insertions of wings, prescutellum, and apex of scutellum yellowish. Sculpture and pubescence, etc., much as in the ☿. Typical male *Iridomyrmex*.

Head, not counting eyes, longer than broad; *mandibles* short, pointed, feeble, without teeth; *eyes* very large and prominent; *ocelli* also large and prominent; *antennae* short, all the joints longer than broad, *scape* shorter than 2nd joint of funiculus. *Thorax* high, convex, narrowed behind, longer than gaster; *gaster* somewhat curved; *genitalia* somewhat large for this genus. Wings slightly iridescent; *veins* and *pterostigma* light yellowish-brown; one small discoidal cell, one long cubital cell, and long closed radial cell present. *Long.* 4·2 mm.

♂ type in British Museum (N.H.).

Iridomyrmex scrutator Smith subsp. *batesi* Forel, 1911, *SitzBer. bayrisch. Akad.* **1911** : 283.

Type locality : New Guinea.

A number of workers taken by Miss L. E. Cheesman in mossy forest, Mt. Baduri, 1000 ft., Japen Island. Trails on all felled trees, viii.1938.

Iridomyrmex myrmecoidae Emery var. **nigriventris** var. n.

Differs from the typical form in having the gaster jet black (blue-black in some light). The head is also of a brighter yellow.

Described from a number of workers taken by Miss L. E. Cheesman on Japen Island, Mt. Baduri, 1000 ft., viii.1938.

Type in British Museum (N.H.).

The ants were nesting in a rotten stump among moss and fern roots; workers were carrying eggs.

Writing about *I. myrmecoidae* in the Solomon Islands, Mann, 1919, *Bull. Mus. comp. Zool.* **63** : 362, stated that there is considerable variation in colour; some examples having the gaster jet black. In Miss Cheesman's colony all the ants had jet-black gasters.

Tapinoma melanocephalum Fabr., 1793, *Ent. Syst.* **2** : 353.

Miss L. E. Cheesman took a number of workers of this cosmopolitan species in her hut in mossy forest, Japen Island, Mt. Baduri, 1000 ft., viii.1938.

Technomyrmex detorquens Walker.

Formica detorquens Walker, 1859, *Ann. Mag. nat. Hist.* (3) **4** : 372.
Formica (*Tapinoma*) *albipes* Smith, 1861, *J. Proc. Linn. Soc. Lond.* (*Zool.*) **6** : 38.
Technomyrmex detorquens Donisthorpe, 1932, *Ann. Mag. nat. Hist.* (10) **9** : 575.

Ceylon (Walker); Celebes (Smith).

Miss L. E. Cheesman took a ☿ in soil on logs, Japen Island : Mt. Oude, 3500–4000 ft., xi.1938.

Leptomyrmicini Emery.

Leptomyrmex fragilis Smith subsp. *melanoticus* Wheeler, 1934, *Bull. Mus. comp. Zool.* **77** : 113.

Type locality : China Straight, New Guinea (Papua).

Workers taken by Miss L. E. Cheesman on a trail, Japen Island : Mt. Baduri, mossy forest, 1000 ft., viii.1938, and Mt. Eiori, 2000 ft., x.1938.

FORMICINAE Lepeletier.

Camponotini Forel.

Camponotus (*Tanaemyrmex*) *hastifer* Emery, 1911, *Nova Guinea* **9** : (2) 254.

Miss L. E. Cheesman took a number of soldiers and workers of this fine large species, JAPEN ISLAND : Mt. Baduri, 1000 ft., vii.1938 and Mt. Eiori, 2000 ft., x.1938. In hut; nesting in tuberous root of epiphyte on fallen tree; at night; and after sugar in house.

Polyrhachis (*Florencea*) *kirkae* Donisthorpe, 1937, *Ann. Mag. nat. Hist.* (10) **19** : 624.

Type locality : Papua, Kokoda.

Miss L. E. Cheesman took a number of workers, JAPEN ISLAND : Mt. Baduri, 1000 ft., in mossy forest walking " the tight-rope " on a creeper across a gully, viii.1938.

A specimen of this fine ant was obtained by the British Ornithological Union's Expedition to New Guinea and is labelled " New Guinea Mimika River Aug. 1910 A. F. R. Wollaston. 1911–229 ". This has the lighter yellow gaster characteristic of the Papuan specimens and matches that of *Aphaenogaster* (*Planimyrma*) *loriai* Emery, of which I have shown it to be a mimic. Miss Cheesman also took the species at Waigeu in company with *Odontomachus tyranicus* Smith v. *obsolescens* Donisthorpe, with the gaster of a darker yellow to match that of the *Odontomachus*. It mimics both these ants of two different subfamilies [see 1940, *Ent. mon. Mag.* **76**, Pl. 5].

Polyrhachis (*Myrma*) *relucens* Latr., 1802, *Hist. nat. Fourmis* : 131, Pl. 4, fig. 24.

Miss L. E. Cheesman took a number of workers, JAPEN ISLAND : Mt. Baduri, in mossy forest, etc., 1000 ft., viii.1938. It is not uncommon on the mainland of New Guinea.

Polyrhachis (*Myrma*) *sericata* Guérin, 1830, *Voyage Coquille Zool.* **2** : 203, Pl. 8, fig. 2.

Miss L. E. Cheesman swept up a deälated female, JAPEN ISLAND : Mt. Baduri, 1000 ft., viii.1938. It is recorded from New Guinea, Moluccas, and New Hebrides.

Polyrhachis (Myrma) sericeopubescens sp. n.

☿. Black covered with a fine yellow silky pubescence which gives the insect a somewhat bronzy appearance, whole body including scapes and legs furnished with yellow outstanding hairs; claws, spurs and bristles brownish-yellow.

Head longer than broad, slightly narrower anteriorly than posteriorly, posterior border emarginate, with two small raised points in centre, a blunt raised ridge from posterior angles to eyes separates cheeks from dorsal surface of head, head finely and evenly longitudinally striate from between frontal carinae to posterior border. Cheeks longitudinally striate; *mandibles* robust, longitudinally striate, and with some scattered oblong fairly large punctures, armed with four strong teeth; *clypeus* finely coriaceous, large, flat, triangular, projecting anteriorly with a row of punctures along anterior border; *frontal area* indistinct; *frontal furrow* very faint, extending between frontal carinae; *frontal carinae*

long, with very sharp raised edges, gradually divergent, and sinuate before base; *cheeks* flat; *eyes* round oval, convex; *antennae* long, *scapes* long, slightly curved and thickened to apex, extending beyond posterior border of head by about $\frac{2}{3}$ of their length, all joints of *funiculi* considerably longer than broad. *Thorax* long, narrow, flat, gradually contracted to base, dorsal surface and sides longitudinally striate, strongly margined, the edges being very sharp and somewhat raised and the notches at sutures deep; *pronotum* considerably longer than mesonotum, armed with two strong sharp spines projecting forwards and slightly outwards; *mesonotum* considerably broader than long with a shallow notch before middle of sides; *epinotum* considerably longer than broad, unarmed, the longitudinal striae are not continued on to the *declivity* which is shorter than dorsal surface and gradual; the *mesoepinotal suture* is not as distinct as the pro-mesonotal one. *Petiole* long, armed with two long sharp spines which are slightly divergent and curved downwards at apex, teeth at sides of petiole very short but sharp. *Gaster* short oval, coriaceous, with scattered hair-bearing punctures. *Legs* long, distinctly coriaceous and with hair-bearing punctures. *Long.* 9 mm.

♀. Shape, colour, sculpture, pubescence, and outstanding hairs as in ☿. The spines of the pronotum and petiole are slightly shorter in proportion, and there is a distinct blunt little tooth between the spines on the petiole, not present in the ☿. *Wings* ample, yellowish; *pterostigma* dark brown, *veins* brownish-yellow. *Long.* 12 mm.

Described from a worker and a winged female, Japen Island: ☿, Mt. Baduri, 1000 ft., viii.1938; Mt. Eiori, 2000 ft., x.1938. Types ☿ and ♀ in British Museum (N.H.) (*Miss L. E. Cheesman*).

This distinct species in the *striata* group does not agree with any of the descriptions of other species of *Myrma* from these regions.

Polyrhachis (*Chariomyrma*) *aurita* Emery var. *longispinosa* Viehmeyer, 1912, *Abh. zool. Mus. Dresden* **14**: 12.

Type locality: N.E. New Guinea.

Miss L. E. Cheesman took 2 ☿☿, Japen Island: Mt. Baduri, 1000 ft., viii.1938 on foliage.

Polyrhachis (Chariomyrma) hostilis Smith subsp. **hebes** subsp. n.

☿. Superficially very like *P.* (*C.*) *hostilis* Smith but the *tooth* at the base of the *scape* is much blunter, more rounded; the *pronotum* is not nearly so transverse, and the tooth at the anterior angles is considerably shorter. The *outstanding hairs* on the thorax are longer and somewhat more abundant. The raised ridges on the *disc* of thorax are sparser and wider apart, and the interstices are smoother and more shining. The *epinotal spines* are straighter, more slender, and sharper. *Long.* 5·5 mm.–6·0 mm.

Described from two workers, Japen Island: Mt. Baduri, 1000 ft., viii.1938 (*Miss L. E. Cheesman*).¶ Type in British Museum (N.H.).

Possibly *hebes* should be considered a good species. It differs from *antennata* Viehmeyer in not having any pubescence on the gaster; and from all the *hostilis* group in various ways.

Polyrhachis (*Myrmhopla*) *rugifrons* Smith, 1860, *J. Proc. Linn. Soc. Lond.* (*Zool.*) **4** (Suppl.): 70.

Type locality: Makassar.

One winged female, Japen Island: Mt. Eiori, 2000 ft., x.1938, at night (*Miss L. E. Cheesman*).

Polyrhachis (Myrmhopla) mucronata Smith subsp. **japensis** subsp. n.

☿. Differs from the typical form in having shorter *pronotal spines*, slightly longer *epinotal* and *petiole* spines, the latter more divergent, and the small teeth between the petiole spines shorter and more produced; otherwise like the type. *Long.* 5–6 mm.

♂. Blackish-brown, antennae, legs and articulation of the wings lighter, yellowish-brown; mandibles pale yellow; whole surface finely coriaceous. *Head* small, longer than broad without eyes, posterior border and temples from eyes rounded; *cheeks* parallel; *mandible* feeble, unarmed, crossing when closed; *clypeus* large, transverse, anterior margin rounded, sinuate before sides; *eyes* very large, situated on each side of the head a little behind centre; *antennae* situated about the centre of upper surface of head; *ocelli* moderate, situated on top of head at base. *Thorax* narrow, longer than broad, broader anteriorly than posteriorly; *pronotum* very transverse and narrow; *mesonotum* large, flat on disc, *mayrian furrows* wanting, *parapsidal furrows* distinct, continued from suture between prescutellum and mesonotum; *scutellum* very convex and prominent; *epinotum* longer than broad, gradually rounded from discoidal surface to declivity; *node* of *petiole* small, upper surface bluntly rounded, with two small projecting tubercles on the sides before base; *gaster* moderate, long oval, *genitalia* small. *Wings* pale yellowish-brown, *pterostigma* and *veins* pale brown. *Long.* 6 mm.

Type and ♂ type in British Museum (N.H.).

Described from a male and 12 workers, JAPEN ISLAND: Mt. Baduri, 1000 ft., viii.1938 in a " papier-maché " nest on underside of palm leaf (*Miss L. E. Cheesman*).

Polyrhachis (*Myrmhopla*) *wheeleri* Mann, 1919, *Bull. Mus. comp. Zool.* **63**: 387.

♀. I consider this insect to be the female of Mann's *P.* (*M.*) *wheeleri* from the Solomon Isles. Compared with cotypes of his workers, the colour, and the sculpture of the head, thorax and gaster are identical. The spines are shorter as is always the case with female specimens of *Polyrhachis*. *Wings* pale yellow, *pterostigma* and *veins* yellow. *Long.* 7 mm.

Miss L. E. Cheesman took a single winged female, JAPEN ISLAND: Mt. Eiori, 2000 ft., x.1938.

Polyrhachis (Cyrtomyrma) rastellata Latr. var. **baduri** var. n.

☿. Black, shining, with the usual reticulation and very small punctures, covered with extremely short, not close, decumbent pubescent-like yellow hairs. The sides of the thorax and petiole are covered with rather large shallow punctures. Differs from the typical form in the colour of the legs, which are black. The head is not so massive or broad behind, the thorax is less robust, the scale is less broad and the teeth are all shorter. *Long.* 6·0–6·5 mm.

♀. Colour and sculpture as in ☿. The scale is broader and the punctures on thorax and petiole a little coarser.

Wings yellowish, *pterostigma* and *veins* yellowish-brown. *Long.* 7·0–7·5 mm.

Type and ♀ type in British Museum (N.H.).

Miss L. E. Cheesman took a number of workers and three winged females in a carton nest under leaves of *Pandanus*, JAPEN ISLAND: Mt. Baduri, 1000 ft., viii.1938.

Lasiini Ashmead.

Paratrechina (*Nylanderia*) *lecamopteridis* Donisthorpe, 1941, *Ann. Mag. nat. Hist.* (11) **7** : 142.

Type locality : Waigeu.

Miss L. E. Cheesman found two colonies of this species, Japen Isl. : Mt. Eiori, 2000 ft., x.1938, one nesting in the roots of a *Polypodium* sp. and the other inside the rhizome of a *Lecamopteris* sp.

Paratrechina (*Euprenolepis*) *nuggetti* Donisthorpe, 1941, *Ann. Mag. nat. Hist.* (11) **7** : 143.

Type locality : Papua, Kokoda.

Miss L. E. Cheesman found a colony in a nest in old termite burrows in a log, Japen Isl. : Mt. Baduri, 1000 ft., viii.1938; and others nesting in soil on logs and stumps and sometimes in débris on large fungi, Japen Isl. : Mt. Oude, 3500–4000 ft., xi.1938.

The following is the description of a male taken in the former colony :—

♂ dirty brownish-yellow, head and gaster a little darker, funiculi, and tarsi pale yellowish-white, eyes black. Body scapes, femora and tibiae clothed with long outstanding brown hairs, gaster covered with fine short decumbent yellowish hairs. *Head* without eyes, longer than broad, *cheeks* straight, parallel, *posterior border* of head and *posterior angles* rounded; *mandibles* narrow, pointed, unarmed; *clypeus* large, convex, transverse, anterior border widely sinuate; *clypeal foveae* distinct; *frontal area* not defined; *frontal furrow* fine, extends from base of clypeus between frontal carinae to median ocellus; *frontal carinae* short, parallel; *eyes* large, convex, oblong oval, with many facets, situated about centre of sides of head; *ocelli* small, situated towards back of head; *antennae* long; *scape* extends by about three-fourths of its length beyond posterior margin of head; all joints of *funiculi* longer than broad, 1st joint about as long as 2nd; the rest a little longer, last joint not equal to the preceding united. *Thorax* narrow, narrowed in front and behind, broadest before middle; *pronotum* narrow and transverse; *mesonotum* convex, rounded in front and behind; *mayrian furrows* absent; *scutellum* flat, longer than broad; *epinotum* without marked declivity, evenly rounded; *petiole* with a small low node; *gaster* oblong oval. *Genitalia* large, *stipes* with a hook at apex. *Legs* long. *Wings* dusky, *pterostigma* and *veins* yellow. *Long.* 3·5 mm.

♂ type in British Museum (N.H.).